

In the Claims¹

1-20 (Previously cancelled)

21. (Previously amended) A scrubbing process for the abatement of a gas component in a gas stream containing same, said scrubbing process comprising introducing the gas stream and a scrubbing liquid to a first gas/liquid contacting chamber and effecting gas/liquid contacting therein, wherein said process additionally comprises at least one of the steps of:

- (a) introducing a chemical reagent for contact with the gas component to remove same from the gas stream in said gas/liquid contacting;
- (b) introducing to the gas stream prior to entry thereof into the contacting chamber, a gas to enhance removal of silane from the gas stream when present therein;
- (c) flowing the effluent gas from the first contacting chamber to a second gas/liquid contacting chamber and introducing to said second contacting chamber a second scrubbing liquid for gas/liquid contacting therein, wherein the first gas/liquid contacting in the first chamber comprises cocurrent flow of the gas stream and scrubbing liquid and wherein the second gas/liquid contacting in the second contacting chamber comprises countercurrent flow of the gas stream and the second scrubbing liquid through the second contacting chamber, wherein said second contacting chamber has a smaller diameter than that of said first contacting chamber, and wherein the second contacting chamber has a lower water flow rate than the first contacting chamber;
- (d) introducing an antifoam agent to scrubbing liquid for said gas/liquid contacting, to suppress foam production in the contacting chamber;
- (e) suppressing deposition of calcium carbonate from scrubbing liquid containing calcium, including a step selected from the group consisting of:

¹ Consistent with the holding of Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., et al., 535 U.S. 722, 152 L.Ed.2d 944 (2002), decided May 28, 2002, any amendments herein that hereafter are deemed to be narrowing amendments by a court of competent jurisdiction in a final unappealed or unappealable decision, are not intended to relinquish any scope of equivalents unforeseeable at the time of this amendment or that relate to aspects of the invention having only a peripheral relation to the basis for the amendment.

- (1) imposing a magnetic field on scrubbing liquid prior to use thereof in the contacting chamber;
 - (2) adjusting the pH of the scrubbing liquid to maintain pH thereof below 8.5;
 - (3) flowing the scrubbing liquid through a lime-soda ash bed prior to use of the scrubbing liquid in the contacting chamber; and
 - (4) precipitating the calcium content of the scrubbing liquid prior to use of the scrubbing liquid in the contacting chamber; and
- (f) suppressing solids formation in a passage of the scrubbing system, said passage comprising a conduit to a pressure sensing device, including a step selected from the group consisting of flowing a purge gas through the passage to suppress solids formation therein, and heating the passage to suppress solids formation therein.

22-25. (Previously cancelled)

26. (Previously amended) A scrubbing process for treatment of an effluent gas including acid gas components and water-scrubbable components other than acid gas component, said process comprising:

scrubbing the effluent gas with a neutral aqueous scrubbing liquid in a first scrubbing zone to remove the acid gas components of the effluent gas, with co-current flow contacting of the aqueous scrubbing liquid and effluent gas with one another to yield effluent gas reduced in acid gas components;

flowing the effluent gas reduced in acid gas components from the first scrubber unit to a second scrubber unit; and

scrubbing the effluent gas with a second aqueous scrubbing liquid in the second scrubbing zone to remove water-scrubbable components other than acid gas component from the effluent gas, with counter-current flow contacting of the second aqueous scrubbing liquid and effluent gas with one another to yield effluent gas reduced in acid gas components and water-scrubbable components other than acid gas components, wherein said second scrubbing zone has a smaller diameter than that of said first scrubbing zone, and wherein the second scrubbing zone has a lower water flow rate than the first scrubbing zone chamber.

27. (Previously amended) The process according to claim 26, wherein the first scrubbing zone is a vessel enclosing an interior volume containing a bed of packing medium.

28-50. (Previously cancelled)

51. (Previously amended) The process according to claim 26 wherein the scrubbing liquid in the second scrubbing zone contains no chemical injection agent.

52. (Previously amended) The process according to claim 21 wherein the scrubbing liquid in the first contacting chamber and second chamber is water.

53. (Previously amended) The process according to claim 21 wherein the first scrubbing liquid contains no chemical injection agent.

54. (Previously amended) The process according to claim 21 wherein the second scrubbing liquid contains no chemical injection agent.

55-56. (Previously cancelled)

57. (Currently amended) The process according to claim 21 wherein the diameter of the second contacting chamber is about 0.20 ~~is less than one fifth~~ the diameter of the first contacting chamber.

58. (Currently amended) The process according to claim 26 wherein the diameter of the second scrubbing zone is about 0.20 ~~less than one fifth~~ the diameter of the first scrubbing zone.

59-60. (Previously cancelled)

61. (Previously amended) A scrubbing process for the abatement of a gas component in a gas stream containing same, said scrubbing process comprising:

introducing the gas stream and a scrubbing liquid to a first gas/liquid contacting chamber and effecting gas/liquid contacting therein; flowing the effluent gas from the first contacting chamber to a second gas/liquid contacting chamber and introducing to said second contacting chamber a second scrubbing liquid for gas/liquid contacting therein, wherein the first gas/liquid contacting in the first chamber comprises co-current flow of the gas stream and scrubbing liquid, and wherein the second gas/liquid contacting in the second contacting chamber comprises countercurrent flow of the gas stream and the second scrubbing liquid through the second contacting chamber, wherein said

second contacting chamber has a smaller diameter than that of said first contacting chamber, and wherein the second contacting chamber has a lower water flow rate than the first contacting chamber.

62-64. (Previously cancelled)